PROJECT INTRODUCTION, GOALS AND OBJECTIVES

The *Washington State System Plan Forecast and Economic Analysis Study* is being conducted to substantiate current and future activity levels and the economic relationship of the airport system in the State of Washington. Prepared to provide individual airport information, the study program has been developed to specifically address issues regarding regional and system-wide changes and impacts. The application of this study will answer important questions with regard to the current aviation system, bring greater efficiency to the planning process in the State of Washington, and produce consistent results which can be used in future airport development and resource allocation.

The major study tasks involved in this element of the State Aviation System Plan include:

- Developing Aviation Forecasts for Each System Airport
- Identifying the Economic Impacts for Each System Airport

INTRODUCTION TO AVIATION DEMAND FORECASTS

AVIATION DEMAND FORECASTING GOALS AND OBJECTIVES

Overall, aviation demand forecasts are prepared as part of the aviation system planning effort to understand the activities at the airports, and to estimate future airport facility and equipment needs. The demand forecasts are used to further identify the type, extent, and timing of aviation development based on the application of policy standards defined by the State's interest in aviation. As consistent with *Washington State Aviation Policy*, this interest is defined through the preservation, safety, capacity, and environmental protection of the airport system.

A comprehensive and systematic approach is used in assessing the future levels of aviation activity in the State of Washington in order to determine likely projections of demand at individual airports, within State regions, and the State as a whole. The following identifies the major goals and objectives of the forecast analysis:

- Understand the various components of general and commercial aviation in the State of Washington in terms historic and projected activity levels;

- Project, over a 20-year planning horizon, aviation demand as a "reasonable expectation" of aeronautical activity, as consistent with other State trends and national aviation forecast trends and forecast projections;

- Consider "unique factors" of system and individual airport activity in assumptions of future demand.

The aviation demand forecasts, projected in increments of 5-year periods during the 20-year planning horizon, involve the following major user categories:

- Forecast of Based Aircraft / Type (ARC) of Aircraft
  - Single Engine
  - Multi-Engine Piston
  - Multi-Engine Turboprop
  - Business Jet
  - Rotorcraft
- Forecast of Aircraft Operations (Part 91, 121, and 135)
  - General aviation, Air taxi, Air Carrier and Military
  - Local and Itinerant Traffic
  - Annual instrument approaches (AIA's)
- Forecast of Scheduled Commercial Enplanements
- Forecast of Scheduled Cargo Operations

STUDY APPROACH AND FORECAST METHODOLOGIES

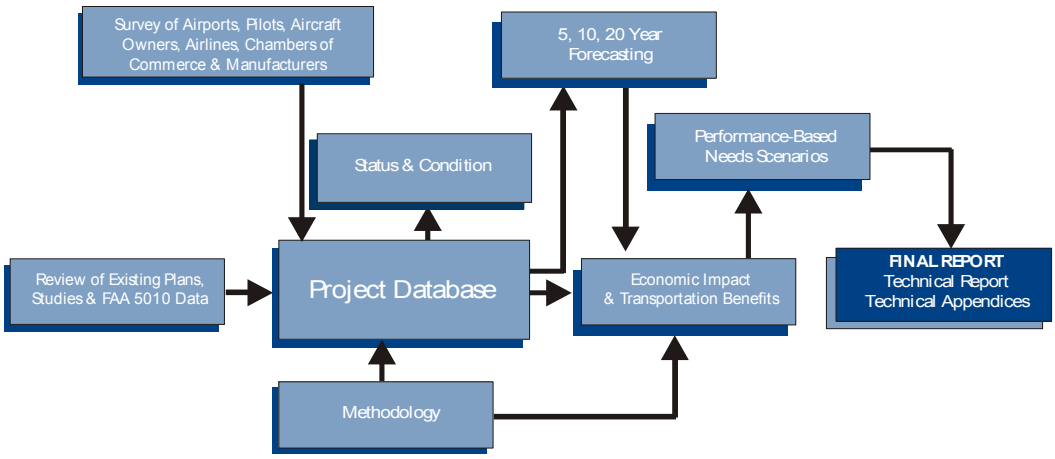
OVERALL FORECASTING METHODOLOGY

The forecast methodology results in a mechanism to quantify a reasonable expectation for aviation demand at individual system airports throughout the State. Development of aviation forecasts involves analytical and judgmental assumptions to realize the highest level of forecast confidence. In system planning forecasting efforts, a top-down approach is commonly used as the means to arrive at individual airport demands, with the overall region and statewide demand accumulated from each individual airport unit, or region.

As part of this effort, a baseline, or "snapshot," of current aviation activity was developed as an initial task in the project formulation for the forecast element of this study. Of the State's airports having system-wide significance in terms of operations and a quantifiable relationship to economic significance, Seattle-Tacoma International Airport as well as all State-owned airports have been omitted from this study, leaving a balance of 115 Study airports. As part of this initial project formulation, a baseline of aviation activity was established from current records (State and federal) and other recent and pertinent information obtained by the WSDOT Aviation Division. This baseline was used to establish the activity level of the current aviation system with respect to 1) based aircraft, 2) annual operations and 3) critical aircraft (airport reference code). For instance, at several smaller airports in the system, primarily seaplane

bases, there were no recorded baseline annual operations or based aircraft (discussed further in forecast section).

To develop a more bottom-up approach, specific information regarding unique airport factors was obtained from data of previous system plan efforts by the WSDOT Aviation Division, as well as a collection of information from more recent airport master plan studies on file with the State and FAA. In addition, information from multiple airport surveys being conducted as part of the economic significance element of this study will be used to validate the overall forecast methodology, and most likely provide additional information to substantiate places where information was not available or not yet known.



The forecast approach assumes an "unconstrained" condition (environment) that suggests that future demand will not be limited (capped) based on physical factors associated with airport development and services. This concept, however, does not attempt to account, or compensate for a change in the airport's role during the 20-year forecast horizon. For instance, the forecasts of based aircraft assumes the growth at the airport will be passively encouraged, including additional hangar development (assumes reasonable rental rates), expanding terminal area facilities and services for local and transient pilots – as demand warrants, maintaining services which have historically established the trend of airport activity (excludes sea plane bases and heliports), and improvements to the instrument approach capabilities - if not currently available.

However, it should be noted that aviation activity, at the national, State and local levels, can be influenced by certain external (exogenous) factors mainly attributed to the types of airport services offered, and by the general business environment. In addition, factors such as vigorous local airport marketing, gains in sales and services, increased commercial/industrialization of the airport vicinity, changes in the preference of transportation modes, or fluctuations in the national or local economy are known to influence aviation demand.

The forecasts prepared as part of this study attempt to counteract these influences with an understanding of unique factors and issues identified for specific airports and regions of the State. As such, the aviation demand forecasts are developed in accordance with national trends, and in context with the inventory findings, including socio-economic characteristics such as population, per capita income, and employment trends. Several forecast approaches were considered to project aviation activity at airports in the state of Washington. The goal of each approach was to establish a positive correlation between demographic or socioeconomic trends and aviation activity.

FORECAST ASSUMPTIONS

The development of system-wide aviation demand forecasts proceeds through two distinct phases or processes: the analytical followed by the judgmental. Historic aviation data and resources are gathered and examined in anticipation of identifying past trends that may lend assistance in determining future or ultimate activity levels. During the analytical process of demand forecasting, historic trends of the aviation demand elements are extended throughout the future planning period by utilizing a variety of techniques and incorporating into the data a number of assumptions. Trend lines developed through the various analytical procedures are noted as projections. Following the preparation of a number of projections, the demand forecasts are able to depict a likely scenario or range of aviation activity in the future.

The second phase of aviation demand forecasting requires professional, as well as experienced judgment. Growth, demand, and activity projections are determined by examining characteristics, as well as the scope of aviation activity within the system, and making subjective analyses and determinations to arrive at reasonably accurate and preferred aviation forecasts.

FORECAST APPROACHES

The most reliable approach to estimating aviation demand is through the utilization of more than one analytical technique. Methodologies often considered for forecasting include regression and multiple regression analysis, time-series/trend extension analysis, market share analysis, and finally, judgmental analysis.

> *Regression Analysis:* This method attempts to establish a linear equation based on a series of points with coordinates x and y. This equation may be used to project future values of "y," the dependent variable, based on historic and projected values of "x," the independent variable(s). This equation takes the form of y = mx + b, where m is the slope and "b" is the "y" intercept of the line. This employs the "least squares method," whereby the line described by the equation is fitted by minimizing the total square of the distances from the data points to the line. The confidence one may have in the correlation between the independent variable(s) and the dependent variable is indicated by Pearson's "r," the correlation coefficient, which is an indicator of the relative strength of the linear relationship between the independent variable(s) and the

dependent variable. The value of "r" for any given correlation ranges from –1 to 1. Values close to zero indicate little correlation, those closer to –1 indicate a strong negative correlation, while those close to 1 indicate a strong positive correlation. Any source of data from which a strong positive or negative correlation is inferred can function as the independent variable. Often it is surmised that an event is influenced by more than one variable. In such cases multiple regression analysis is employed, whereby two or more independent variables (x^1, x^2, etc.) are used to establish a correlation with the dependent variable (y).

Time Series Analysis: A special type of linear regression, time series analysis uses time as the independent variable. As the independent variable in time series analysis is perfectly linear and does not require projections, this method provides a good indication as to whether a trend can be established and the likelihood that it will continue. The basic and underlying premise of this forecasting technique is that the historic stimuli for aviation demand will continue to exert a similar influence on the ultimate demand levels. As broad as this assumption may be, such time-series projections serve as a reliable and accurate benchmark against which other forecast projections may be compared.

Market Share Analysis: Market share analysis involves the evaluation of aviation activity within a state, region, or a single airport as a percentage of a regional, state, or national market. The resulting market share trend may then be projected into the future, either as a static or dynamic share of the larger market, thereby determining future aviation activity.

Judgmental Analysis: Forecasting is as much an art as a science. Therefore, despite the robustness of any given forecast tool, there is no substitute for the judgement and experience of the forecaster in producing reasonable forecasts.

DATA RESOURCES UTILIZED FOR AVIATION DEMAND FORECASTING

Initially, forecasting efforts revolved around gathering pertinent aviation statistics for the State of Washington. Examples of this include the number of active pilots and registered aircraft in the State, the number and type of aircraft based at each airport, annual enplanements at commercial service airports, air cargo activity, and annual operations at each airport. In addition to aviation statistics, State and county demographic information, such as historic and projected population and per capita income data, will assure the reliability of demand forecasts.

The total number of registered aircraft located/based within the State of Washington was derived from the AIRPAC Plane CD Aviation Database. The AIRPAC Plane CD, created by the AIRPAC Corporation, derives its information from the Civil Aircraft Registry, as well as the Airman/Pilot Certification Branch located at the Mike Monroney FAA Aeronautical Center in Oklahoma City, Oklahoma.

It should be noted that aircraft are registered according to the county of residence of the aircraft owner rather than the physical location or airport where the aircraft is actually based. For example, an aircraft can be registered in one county according to the owner's home address, but be located or based at an airport in an adjacent county.

Three sources were utilized to determine the total number of based aircraft at airports included in the State Aviation System Plan. First, the most current FAA Form 5010, "Airport Master Record," was obtained for each airport. A limitation of these forms, however, is that, due to the cost involved, they are not updated on a yearly basis. The second source of based aircraft information was the 1998 Washington State Aviation System Plan Airport Data Condition Assessment Database. Finally, a review was made of master plans available for airports included in this study.

Information regarding annual aircraft operations at the 13 system airports included in the study with air traffic control towers (ATCT) was derived from the FAA Office of Policy and Plans, Air Traffic Activity Data System for calendar year 1998. This information was further supplemented by the WDSOT Airport Data Condition Assessment Database. Annual operations at system airports without an ATCT were derived from the WSDOT Assessment Database as well as FAA 5010 forms. It should be noted that, in the absence of an operational ATCT, the number of operations indicated on the 5010 forms represent the best estimate of the airport manager or State airport inspector.

Historical passenger enplanement data for calendar years 1980 through 1999 was derived from the FAA Division of Aviation Policy, Plans & Management Analysis (APO), FAA APO Terminal Area Forecast System, as well as the FAA Airport Capacity Branch. The DOT Statistical Handbook of Aviation, airport and airline records, and the Official Airline Guide (OAG) were relied upon for information regarding commercial service activity. The OAG was a reliable tool in that it provided the necessary information to determine the number of scheduled commercial service arrivals and departures as well as the types of aircraft operating at the State's commercial service airports. This information assisted with forecasting passenger load factors, enplanements, and operations.

Population estimates were derived from the U.S. Department of Commerce, Bureau of the Census and the Bureau of Economic Analysis. Population projections were derived form the U.S. Bureau of the Census and the Washington State Office of Financial Management (OFM). In addition, Personal Per Capita Income (PCI) information was gathered from the Washington State OFM, the Bureau of Economic Analysis, and the Washington State University Cooperative Extension.

NATIONAL GENERAL AVIATION TRENDS

The FAA Aerospace Forecasts were used to assist in determining annual percentage growth rates and trends of various facets of the aviation industry. An example of this is the estimated or projected percentage of hours flown by a specific category of aircraft over the planning period. For instance, this information would be helpful and applied to forecasting the annual utilization rate of multi-engine piston powered aircraft activity at airports with high numbers of based multi-engine aircraft. As an overview, the following is a summary of the key factors guiding aviation demand levels at the national level.

- During the past several years, industry and legislative reforms have been initiated which are poised to bring rather significant change and growth to all aspects of the general aviation industry. In conjunction with this, the growing national economy has induced a greater reliance on business aircraft utilization, but also a resurgence in recreational flying, as demonstrated by new pilot starts and increased experimental aircraft building. These factors have resulted in a new-found optimism for sustained long-term growth of the general aviation industry. As examples, the single-engine general aviation fleet is becoming more sophisticated, with a gradual increase in the fleet size and pilot training. The recent infusion of new aircraft technology into general aviation has resulted in higher performance, more reliable and cost-effective single-engine airplanes, as evidenced by the manufacturing proliferation of new production airplanes and various experimental aircraft models, including home-built planes.

- More vibrant business utilization, combined with increasingly complex pilot and airspace regulations, have greatly contributed to a more sophisticated pilot population flying a more advanced and demanding aircraft fleet. Associated with this, the recent cost escalation associated with recreational flying, coupled with higher liability and taxes for those who own, rent, and operate general aviation aircraft has contributed to an increase in business and itinerant aircraft operations relative to pilot training and recreational activity. This trend is becoming evident particularly at smaller, non-towered general aviation airports both in urban and rural areas.

- The higher-value twin-piston and turbo-propeller engine aircraft are being manufactured slightly in advance of normal attrition, and continue to gain market share popularity. Due to new airframe and engine technology and cost–sharing arrangements, jet aircraft also have become an economical substitute for a number of the larger twin-turbine propeller aircraft. In addition, the pre-owned general aviation aircraft market has remained strong. Also, national legislation passed in 1994 established an 18-year liability horizon for the design of general aviation aircraft and components, allowing more affordable design and navigational technologies in the mainstream marketplace, as well as a proliferation of experimental aircraft production under revised FAA certification guidelines.

- National aviation trends (flight hours, fleet composition, etc.) indicate a growing transition to larger, faster, and more sophisticated general aviation aircraft, coupled with a leveling-off of single-engine and smaller multi-engine piston aircraft activity over the next three to five years. This is due primarily to the attrition of the existing small aircraft production fleet. Because of continued manufacturing and maintenance reliability of turbine engines, the percent of multi-turbine, and eventually single-turbine operations is anticipated to increase relative to the aggregate fleet utilization. In addition, it is anticipated that a greater percent of the based single-engine aircraft, and annual operations would be comprised of more complex ARC A-I aircraft, including a moderate proliferation of experimental airplane activity. In recent years, newly certified production aircraft and experimental aircraft have entered the mainstream general aviation market for recreational and business use. Although the majority of aircraft activity will continue to be conducted by small single and twin-engine airplanes, projections indicate a slight to moderate growth-trend toward larger itinerant twin-engine activity, which is consistent with recent airport trends.

- The regional airline industry has continued to evolve through further consolidation and more strongly connected marketing and operating agreements with the major air carriers. This trend has been particularly proliferated through dominant hubs. Along with higher passenger loads brought about by more favorable economic conditions, better planned route rationalization, and upgraded fleets (aircraft size, speed and operating costs); enplanements, load factors, and operating revenues are forecast to grow at about 10.5 percent annually.

FORECAST STUDY ELEMENTS

The structure of the forecast element, including a detailed discussion of each forecast topic along with tables, charts, and exhibits, is explained on the following pages, as outlined below:

- General Aviation Activity
- Major Air Carrier / Regional Carrier Activity
- Military Activity
- Cargo

GENERAL AVIATION ACTIVITY

WASHINGTON STATE/COUNTY REGISTERED AIRCRAFT FORECASTS

A "top-down" approach was used to forecast general aviation activity; hence forecasts were formulated for the State first, followed by those for the counties and individual airports. The first, and most basic, measure of general aviation activity on the State level is registered aircraft. FAA forecasts activity for such aircraft under the category "Active General Aviation and Air Taxi Aircraft." In order to be considered "active," an aircraft must have a current registration and have been flown at least one hour during the previous calendar year. Registered aircraft information for the State of Washington and its counties was obtained from *the Census of U.S. Civil Aircraft* and the FAA Office of Aircraft Registry. In order to evaluate the validity of forecast methods, six (6) methodologies were formulated to forecast registered aircraft. Supporting information used in formulating the forecasts is included in **Tables 1A and 1B**, while **Table 1C** summarizes the forecasting methods used as well as the preferred registered aircraft forecast for the State. **Exhibit A** compares national and state active pilots as a percentage of total population.

The first method employed was time-series analysis, which, as was previously explained, uses the year as the independent variable (x) and the number of registered aircraft as the dependent variable (y). Since the independent variable (time) is perfectly linear, registered aircraft projections increase at a uniform rate to 12,100 in 2005, 13,500 in 2010, 14,900 in 2015, and 16,300 in 2020. The correlation coefficient for this method was 0.79, indicating a strong positive correlation.

The next method employed the ratio of Washington's personal per capita income to that of the United States as the independent variable. The dependent variable used in this case was Washington's market share of registered aircraft, which is the percentage of the United States active general aviation aircraft fleet registered in the state of Washington. Forecasts of Washington registered aircraft were then computed by multiplying the forecast market share by the number of active general aviation aircraft nationally..

TABLE 1A
DEMOGRAPHIC DATA

Year	Population				Per Capita Personal Income			
	United States		Washington		United States		Washington	
	Population[1,3]	Annual Change	Population[3]	Annual Change	Income[3]	Annual Change	Income[4]	Annual Change
Historic								
1990	249,464,396		4,900,780		20,625		21,028	
1991	252,153,092	1.08%	5,013,443	2.30%	20,274	-1.70%	20,949	-0.38%
1992	255,029,699	1.14%	5,139,011	2.50%	20,553	1.38%	21,349	1.91%
1993	257,782,608	1.08%	5,247,704	2.12%	20,661	0.53%	21,341	-0.04%
1994	260,327,021	0.99%	5,334,896	1.66%	20,987	1.58%	21,437	0.45%
1995	262,803,276	0.95%	5,431,024	1.80%	21,437	2.14%	21,892	2.12%
1996	265,228,572	0.92%	5,509,963	1.45%	22,029	2.76%	22,617	3.31%
1997	267,783,607	0.96%	5,604,105	1.71%	22,624	2.70%	23,514	3.97%
1998	270,248,003	0.92%	5,687,932	1.50%	23,355	3.23%	24,770	5.34%
Forecast								
2005	287,716,000	0.90%	6,291,772	1.45%	25,738	1.40%	26,778	1.12%
2010	299,862,000	0.83%	6,693,325	1.25%	28,037	1.73%	29,216	1.76%
2015	312,268,000	0.81%	7,142,144	1.31%	30,010	1.37%	31,263	1.36%
2020	324,927,000	0.80%	7,610,089	1.28%	32,130	1.37%	33,355	1.30%

Source:
[1]Historic U.S. population: U.S. Department of Commerce, Bureau of Economic analysis; Foreceasts: U.S. Census Bureau
[2]Historic Washington population: U.S. Department of Commerce, Bureau of Economic Analysis
[3]Forecasts: State of Wasington Office of Financial Management
[4]State of Washington Office of Financial Management

TABLE 1B
AVIATION ACTIVITY

Year	United States			
	Pilot Population[5]	Annual Change	Active General Aviation/Air Taxi Aircraft[4]	Annual Change
Historic				
1992	683,100		185,650	
1993	665,069	-2.6%	177,119	-4.6%
1994	654,088	-1.7%	172,936	-2.4%
1995	639,184	-2.3%	188,089	8.8%
1996	622,261	-2.6%	191,129	1.6%
1997	616,342	-1.0%	192,414	0.7%
1998	618,298	0.3%	204,710	6.4%
1999	640,113	3.5%	206,530	0.9%
Forecast				
2005	737,344	2.0%	219,415	0.9%
2010	809,971	1.9%	229,070	0.9%
2015[6]	892,500	2.0%	240,400	1.0%
2020[6]	985,400	2.0%	252,700	1.0%

[5]Source: FAA Aerospace Forecasts

[6]Interpolations by BWR

TABLE 1C
STATEWIDE REGISTERED AIRCRAFT FORECASTS

Year	Method 1 Time Series Analysis: y = State Registered Aircraft		Method 2 Regression Analysis: x = State PCI to U.S. PCI y = State Marketshare of U.S. G/A aircraft		
	Registered Aircraft[7]	Market Share	Registered Aircraft	State PCI/U.S. PCI	Marketshare
Historic					
1992	8,521	4.6%	8,521	1.04	4.6%
1993	8,243	4.7%	8,243	1.03	4.7%
1994	9,420	5.4%	9,420	1.02	5.4%
1995	9,611	5.1%	9,611	1.02	5.1%
1996	9,733	5.1%	9,733	1.03	5.1%
1997	9,682	5.0%	9,682	1.04	5.0%
1998	10,051	4.9%	10,051	1.06	4.9%
Forecast[8]					
2005	12,100	5.51%	10,800	1.04	4.92%
2010	13,500	5.89%	11,200	1.04	4.90%
2015	14,900	6.20%	11,800	1.04	4.90%
2020	16,300	6.45%	12,500	1.04	4.94%

[7]Census of U.S. Civil Aircraft; FAA Aircraft Registry, Mike Moroney Aeronautical Center

[8]Forecasts by BWR

TABLE 1C (Continued)
STATEWIDE REGISTERED AIRCRAFT FORECASTS

Year	Method 3 Regression Analysis: y = State Registered Aircraft		Method 4 Mulitple Regression Analysis: x1 = State Population, x2 = State PCI y= State Registered Aircraft		
	Registered Aircraft	State Pop/U.S. Pop	Registered Aircraft	State Population	State PCI
Historic					
1992	8,521	2.02%	8,521	5,139,011	21,349
1993	8,243	2.04%	8,243	5,247,704	21,341
1994	9,420	2.05%	9,420	5,334,896	21,437
1995	9,611	2.07%	9,611	5,431,024	21,892
1996	9,733	2.08%	9,733	5,509,963	22,617
1997	9,682	2.09%	9,682	5,604,105	23,514
1998	10,051	2.10%	10,051	5,687,932	24,770
Forecast[8]					
2005	11,700	2.19%	12,200	6,291,772	26,778
2010	12,500	2.23%	13,500	6,693,325	29,216
2015	13,500	2.29%	15,000	7,142,144	31,263
2020	14,600	2.34%	16,600	7,610,089	33,355

[7]Census of U.S. Civil Aircraft; FAA Aircraft Registry, Mike Moroney Aeronautical Center

[8]Forecasts by BWR

TABLE 1C (Continued)
STATEWIDE REGISTERED AIRCRAFT FORECASTS

	Method 5 State Registered Aircraft in Lockstep with FAA GA/Air Taxi Aircraft Forecasts		Method 6 Multiple Regression Analysis: x1 = U.S. Pilot Population, x2 = Time Series y = State Registered Aircrat		
Year	Registered Aircraft	Active G/A and Air Taxi Aircraft	Registered Aircraft	United States Pilot Population	Year
Historic					
1992	8,521	185,650	8,521	683,100	1992
1993	8,243	177,119	8,243	665,069	1993
1994	9,420	172,936	9,420	654,088	1994
1995	9,611	188,089	9,611	639,184	1995
1996	9,733	191,129	9,733	622,261	1996
1997	9,682	192,414	9,682	616,342	1997
1998	10,051	204,710	10,051	618,298	1998
Forecast[8]					
2005	10,800	219,415	10,200	737,344	2005
2010	11,300	229,070	10,500	809,971	2010
2015	11,900	240,400	10,600	892,500	2015
2020	12,500	252,700	10,700	985,400	2020

[7]Census of U.S. Civil Aircraft; FAA Aircraft Registry, Mike Moroney Aeronautical Center

[8]Forecasts by BWR

TABLE 1C (Continued)
STATEWIDE REGISTERED AIRCRAFT FORECASTS

Year	Preferred Forecast		
	Registered Aircraft	Active General Aviation and air Taxi Aircraft	Marketshare
Historic			
1992	8,521	185,650	4.59%
1993	8,243	177,119	4.65%
1994	9,420	172,936	5.45%
1995	9,611	188,089	5.11%
1996	9,733	191,129	5.09%
1997	9,682	192,414	5.03%
1998	10,051	204,710	4.91%
Forecast[8]			
2005	11,400	219,415	5.20%
2010	12,300	229,070	5.37%
2015	13,200	240,400	5.49%
2020	14,100	252,700	5.58%

[7]Census of U.S. Civil Aircraft; FAA Aircraft Registry, Mike Moroney Aeronautical Center

[8]Forecasts by BWR

Pilots as Percentage of Total Population for 1998

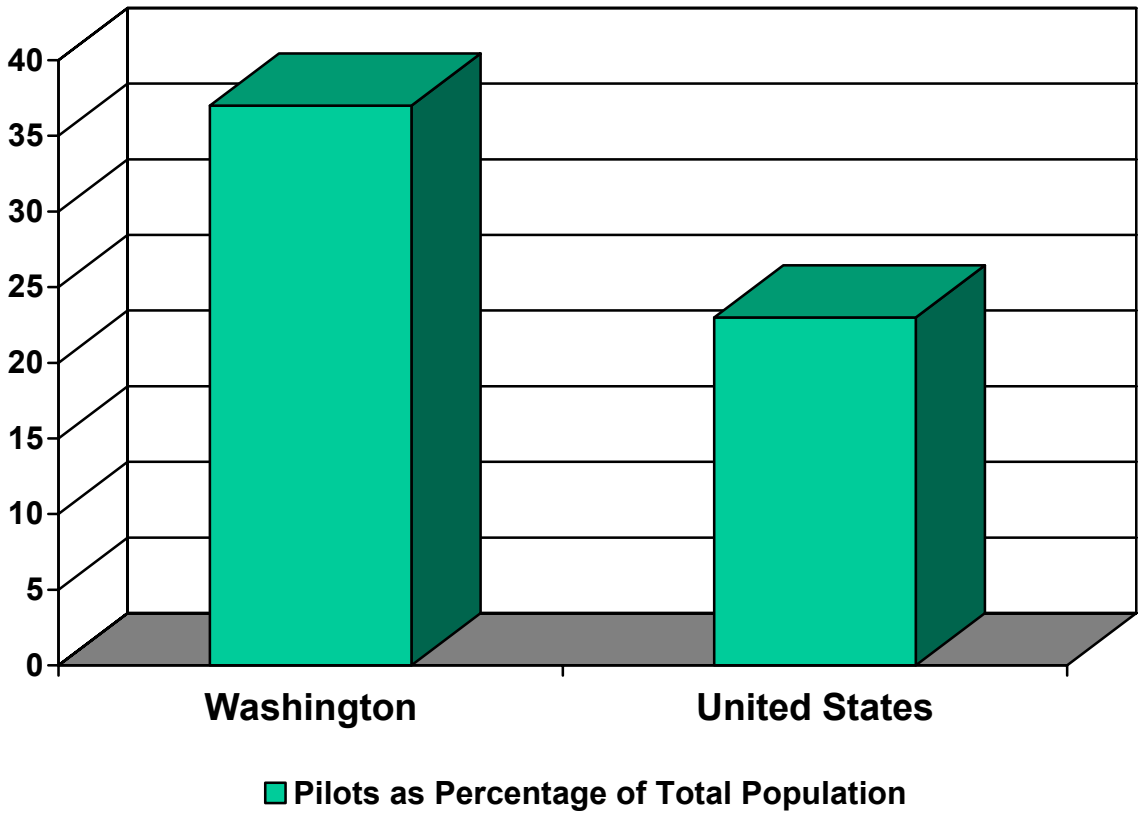


Exhibit A

This method yielded a static market share, and resulted in fewer registered aircraft than the first method with 10,800 in 2005, 11,200 in 2010, 11,800 in 2015, and 12,500 in 2020. The correlation coefficient for this method was 0.22, indicating a weak correlation between the dependent and independent variables.

Method number three (3) is similar to the previous method; however, in this instance, the ratio of Washington's population to that of the United States was used as the independent variable, while the State's registered aircraft population was used as the dependent variable. This yielded 11,700 registered aircraft in 2005, 12,500 in 2010, 13,500 in 2015, and 14,600 in 2020. The correlation coefficient for this method was 0.79, indicating a strong correlation between the dependent and independent variables.

The fourth method employed multiple regression analysis using the State's population and per capita income as independent variables and registered aircraft as the dependent variable. This yielded the most optimistic forecast with 12,200 registered aircraft in 2005, 13,500 in 2010, 15,000 in 2015, and 16,600 in 2020. The correlation coefficient for this method was 0.82, indicating a very strong relationship between the dependent and independent variables.

The next method increased the number of aircraft registered in the State in lockstep with FAA's forecast of active general aviation/air taxi aircraft. This resulted in 10,800 registered aircraft in 2005, 11,300 in 2010, 11,900 in 2015, and 12,500 in 2020. As this set of forecasts was not formulated using regression analysis, a correlation coefficient was not calculated.

The final method employed another multiple regression with the United States pilot population as one of the independent variables; in order to moderate this trend with factors unique to Washington, time series was used as the second independent variable. This method resulted in the most pessimistic forecasts of the six methods used, yielding 10,200 registered aircraft in 2005, 10,500 in 2010, 10,600 in 2015, and 10,700 in 2020. The correlation coefficient for this method was .79, indicating a strong relationship between the dependent and independent variables.

As five of the six methods yielded results with very positive "r" factors, these five methods were averaged to yield a preferred registered aircraft forecast of 11,400 in 2005, 12,300 in 2010, 13,200 in 2015, and 14,100 in 2020. **Exhibit B** depicts the forecast increase in registered aircraft from 1998 to 2010 for the State of Washington and the United States.

The next task was to apportion the State's forecast registered aircraft to the various counties. Until 1993, the FAA published its *Census U.S of Civil Aircraft*, which, among other things, contained the number of aircraft registered in each state by county. As this document is no longer published, the number of aircraft registered in each Washington county in 2000 was obtained from the AIRPAC CD. FAA national aviation activity statistics are typically released two years in arrears; hence 1998 national aviation statistics are the latest currently available. Since these were relied upon for use as independent variables in regression analysis as well as to determine market share, 1998 served as the base year for the State's

Forecasts Increase in Registered Aircraft from 1998 to 2010

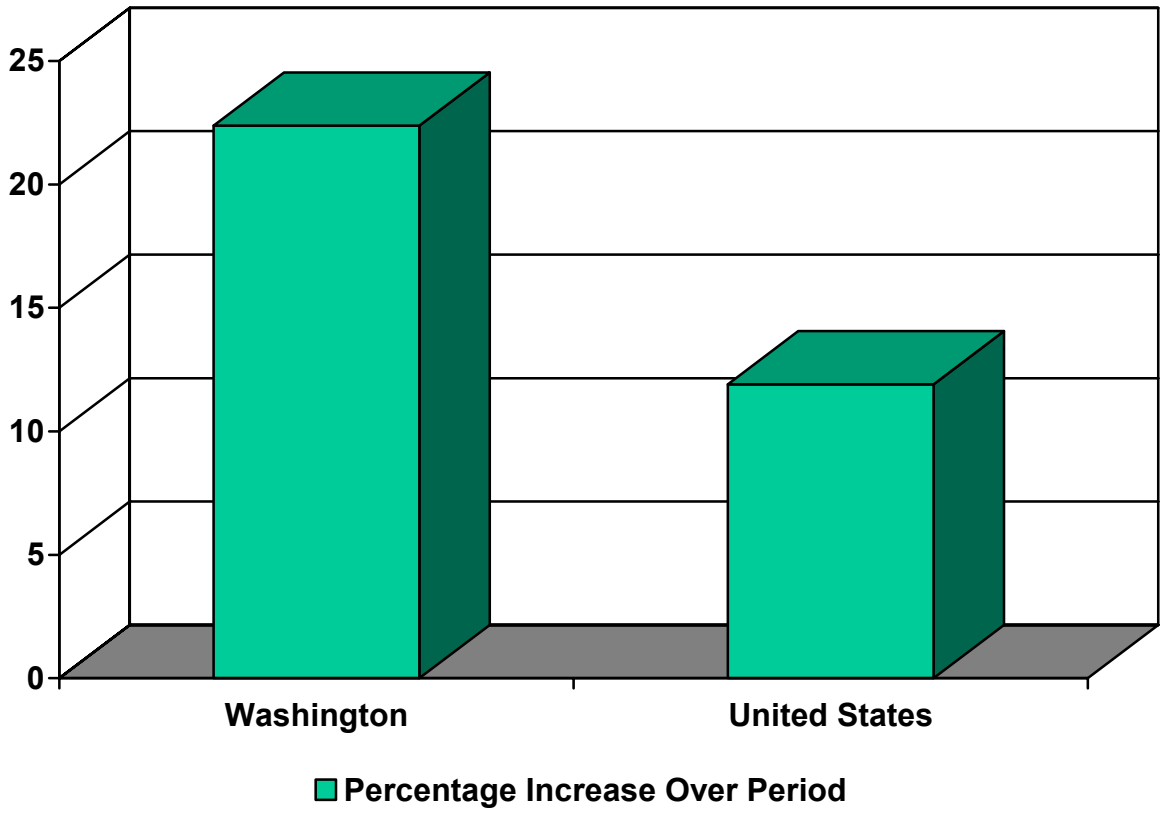


Exhibit B

registered aircraft forecasts. However, as the AIRPAC CD contains county registered aircraft data for 2000, county registered aircraft forecasts and based aircraft forecasts for each airport use 2000 as the base year.

A myriad of factors influence the growth of registered aircraft in any given county. As the most influential of these are the size and affluence of the population, a metric was developed using the forecast population, population density, and personal per capita income of each county.

Population projections for 2005, 2010, 2015, and 2020 were obtained from the publication *Washington State County Population Projections by Age and Sex: 1990-2020*. The proportion of the State's projected increase in population attributable to each county was determined by dividing the change in population projected for each county for each phase of the planning period (2005, 2010, 2015, and 2020) by the change in State population for each of these phases. The resulting population coefficient for each county has been included in **Table 1D**.

Per capita personal income (PCI) was evaluated by dividing PCI for each county by the total of PCI for all Washington counties. This in itself does not create usable information, since the total of each county's PCI figure is not a valid metric. However, the percentages derived from this activity serve as a valid weighting factor. The PCI coefficient for each county has been included in **Table 1E**.

Washington counties are defined as urban or rural by their population densities; those with densities of 100 persons per square mile are considered urban, while those with fewer than 100 persons per square mile are considered rural. **Table 1F** depicts population density for each county.

A matrix, using the population, per capita income, and population density metrics described above, was developed to apportion total registered aircraft in Washington to each county. First, the population and PCI metrics were multiplied by a significance factor. As PCI was deemed to be a more influential factor in general aviation aircraft ownership, it received a significance factor of 0.75; population, while important, was deemed less influential and given a significance factor of 0.25. Each county's manipulated PCI and population coefficients were added, and then divided by the total of these figures for all Washington county's to yield a weighting factor.

It was assumed that the propensity for an individual or business to own an aircraft is higher in urban than rural counties. The density coefficient was obtained by assigning a factor of one to each county and then adding 0.95 for urban counties (1.95) and subtracting 0.95 (0.05) for rural counties. The population density coefficient was then multiplied by the PCI/population weighting factors. The number obtained for each county was then divided by the total for all counties in the State to arrive at a multiplier. These results are displayed as an apportionment matrix in **Table 1G**. The multiplier for each county was then multiplied by the forecast registered aircraft figure for each phase to determine the number of registered aircraft assigned to each county, which is depicted in **Table 1H**. Since the total of all county multipliers equals 100%, this model accounts for all aircraft forecast to be registered in the State for each phase.

TABLE 1D
STATE POPULATION CHANGE ATTRIBUTED TO EACH COUNTY

County	2000	2005		2010		2015		2020	
	Population*	Population*	Attributable Portion of Change	Population*	Attributable Portion of Change	Population*	Attributable Portion of Change	Population*	Attributable Portion of Change
Adams	16,343	17,508	0.26%	18,502	0.25%	19,724	0.27%	20,997	0.27%
Asotin	20,256	21,566	0.30%	22,632	0.27%	23,569	0.21%	24,766	0.26%
Benton	146,020	155,320	2.10%	163,037	1.92%	172,525	2.11%	181,806	1.98%
Chelan	66,390	71,468	1.15%	76,093	1.15%	81,054	1.11%	86,213	1.10%
Clallam	67,898	72,559	1.05%	75,502	0.73%	78,292	0.62%	82,477	0.89%
Clark	322,755	352,629	6.76%	377,478	6.19%	401,071	5.26%	425,502	5.22%
Columbia	4,253	4,389	0.03%	4,542	0.04%	4,755	0.05%	4,970	0.05%
Cowlitz	94,383	102,763	1.90%	112,904	2.53%	123,161	2.29%	134,122	2.34%
Douglas	32,683	36,557	0.88%	39,596	0.76%	42,801	0.71%	45,969	0.68%
Ferry	7,655	8,242	0.13%	8,775	0.13%	9,368	0.13%	9,986	0.13%
Franklin	48,831	53,041	0.95%	56,592	0.88%	60,915	0.96%	65,152	0.91%
Garfield	2,414	2,486	0.02%	2,560	0.02%	2,646	0.02%	2,726	0.02%
Grant	74,266	82,396	1.84%	86,631	1.05%	89,804	0.71%	92,878	0.66%
Grays Harbor	71,848	73,905	0.47%	76,821	0.73%	81,010	0.93%	86,309	1.13%
Island	76,977	84,892	1.79%	92,488	1.89%	99,970	1.67%	106,649	1.43%
Jefferson	28,825	33,001	0.95%	36,747	0.93%	40,766	0.90%	44,822	0.87%
King	1,679,066	1,763,634	19.14%	1,840,172	19.06%	1,929,920	20.00%	2,030,674	21.53%
Kitsap	244,049	266,645	5.11%	288,087	5.34%	312,123	5.36%	337,602	5.44%
Kittitas	32,493	34,714	0.50%	36,842	0.53%	39,450	0.58%	42,241	0.60%
Klickitat	19,410	20,838	0.32%	22,126	0.32%	23,571	0.32%	25,074	0.32%
Lewis	70,286	76,004	1.29%	80,843	1.21%	86,249	1.20%	92,395	1.31%
Lincoln	10,056	10,295	0.05%	10,886	0.15%	11,604	0.16%	12,351	0.16%
Mason	49,985	54,588	1.04%	59,404	1.20%	64,806	1.20%	70,565	1.23%
Okanogan	39,324	41,858	0.57%	44,061	0.55%	46,314	0.50%	48,385	0.44%
Pacific	21,992	23,640	0.37%	24,915	0.32%	26,729	0.40%	28,628	0.41%
Pend Orielle	11,918	12,979	0.24%	13,974	0.25%	15,011	0.23%	16,055	0.22%
Pierce	721,608	763,819	9.55%	812,002	12.00%	863,459	11.46%	916,848	11.41%
San Juan	13,877	15,680	0.41%	17,366	0.42%	19,168	0.40%	21,110	0.42%

TABLE 1D
STATE POPULATION CHANGE ATTRIBUTED TO EACH COUNTY

County	2000	2005		2010		2015		2020	
	Population*	Population*	Attributable Portion of Change	Population*	Attributable Portion of Change	Population*	Attributable Portion of Change	Population*	Attributable Portion of Change
Skagit	103,478	114,635	2.52%	125,508	2.71%	137,714	2.72%	152,812	3.23%
Skamania	10,179	10,883	0.16%	11,468	0.15%	12,131	0.15%	12,809	0.14%
Snohomish	582,519	660,682	17.69%	719,914	14.75%	783,066	14.07%	836,992	11.52%
Spokane	423,347	449,063	5.82%	476,419	6.81%	510,971	7.70%	547,959	7.90%
Stevens	38,472	42,405	0.89%	46,585	1.04%	52,101	1.23%	58,503	1.37%
Thurston	214,767	243,550	6.51%	267,988	6.09%	295,443	6.12%	324,911	6.30%
Wahkiakum	3,950	4,285	0.08%	4,657	0.09%	5,050	0.09%	5,490	0.09%
Walla Walla	55,802	59,274	0.79%	62,230	0.74%	65,197	0.66%	67,519	0.50%
Whatcom	164,003	178,461	3.27%	192,505	3.50%	208,242	3.51%	224,391	3.45%
Whitman	41,878	43,498	0.37%	45,037	0.38%	47,142	0.47%	49,705	0.55%
Yakima	215,637	227,620	2.71%	239,436	2.94%	255,252	3.52%	271,726	3.52%
State Total	5,849,893	6,291,772	100.00%	6,693,325	100.00%	7,142,144	100.00%	7,610,089	100.00%

*Source: Washington State Population Projections by Sex and Age: 1990 - 2020

TABLE 1E
1998 PER CAPITA PERSONAL INCOME FOR WASHINGTON COUNTIES

County	Capita Income	Income Coefficient
Adams	20,605	2.4%
Asotin	20,829	2.4%
Benton	24,315	2.8%
Chelan	24,654	2.8%
Clallam	22,786	2.6%
Clark	26,882	3.1%
Columbia	20,211	2.3%
Cowlitz	21,851	2.5%
Douglas	19,072	2.2%
Ferry	16,031	1.9%
Franklin	18,479	2.1%
Garfield	19,293	2.2%
Grant	20,301	2.3%
Grays Harbor	20,186	2.3%
Island	23,743	2.7%
Jefferson	23,658	2.7%
King	40,905	4.7%
Kitsap	22,957	2.7%
Kittitas	20,241	2.3%
Klickitat	19,535	2.3%
Lewis	19,969	2.3%
Lincoln	21,269	2.5%
Mason	19,220	2.2%
Okanogan	19,626	2.3%
Pacific	20,139	2.3%
Pend Orielle	17,813	2.1%
Pierce	24,500	2.8%
San Juan	35,573	4.1%
Skagit	24,079	2.8%
Skamania	20,915	2.4%
Snohomish	27,015	3.1%
Spokane	23,450	2.7%
Stevens	17,028	2.0%
Thurston	24,895	2.9%
Wahkiakum	20,216	2.3%
Walla Walla	20,845	2.4%
Whatcom	22,732	2.6%
Whitman	18,696	2.2%
Yakima	20,718	2.4%
Total	865,232	100%

Source: U.S. Department of Commerce, Bureau of Economic Analys

TABLE 1F
POPULATION DENSITY OF WASHINGTON COUNTIES

County	Square Miles	1998		2005		2010		2015		2020	
		Population		Population		Population		Population		Population	
		Total	Density	Total	Density	Total	Density	Total	Density	Total	Density
Adams	1,925.0	15,339	8.0	17,508	9.1	18,502	9.6	19,724	10.2	20,997	10.9
Asotin	635.9	21,286	33.5	21,566	33.9	22,632	35.6	23,569	37.1	24,766	38.9
Benton	1,708.1	136,132	79.7	155,320	90.9	163,037	95.4	172,525	101.0	181,806	106.4
Chelan	2,921.6	60,169	20.6	71,468	24.5	76,093	26.0	81,054	27.7	86,213	29.5
Clallam	1,745.2	64,273	36.8	72,559	41.6	75,502	43.3	78,292	44.9	82,477	47.3
Clark	627.9	327,418	521.4	352,629	561.6	377,478	601.2	401,071	638.7	425,502	677.7
Columbia	868.8	4,158	4.8	4,389	5.1	4,542	5.2	4,755	5.5	4,970	5.7
Cowlitz	1,138.7	91,409	80.3	102,763	90.2	112,904	99.2	123,161	108.2	134,122	117.8
Douglas	1,820.6	33,600	18.5	36,557	20.1	39,596	21.7	42,801	23.5	45,969	25.2
Ferry	2,204.0	7,163	3.3	8,242	3.7	8,775	4.0	9,368	4.3	9,986	4.5
Franklin	1,242.2	46,511	37.4	53,041	42.7	56,592	45.6	60,915	49.0	65,152	52.4
Garfield	710.5	2,317	3.3	2,486	3.5	2,560	3.6	2,646	3.7	2,726	3.8
Grant	2,676.4	70,667	26.4	82,396	30.8	86,631	32.4	89,804	33.6	92,878	34.7
Grays Harbor	1,917.8	67,463	35.2	73,905	38.5	76,821	40.1	81,010	42.2	86,309	45.0
Island	288.6	71,747	248.6	84,892	294.2	92,488	320.5	99,970	346.4	106,649	369.5
Jefferson	1,808.8	26,275	14.5	33,001	18.2	36,747	20.3	40,766	22.5	44,822	24.8
King	2,126.1	1,654,329	778.1	1,763,634	829.5	1,840,172	865.5	1,929,920	907.7	2,030,674	955.1
Kitsap	396.0	232,933	588.2	266,645	673.3	288,087	727.5	312,123	788.2	337,602	852.5
Kittitas	2,297.9	31,403	13.7	34,714	15.1	36,842	16.0	39,450	17.2	42,241	18.4
Klickitat	1,872.5	19,361	10.3	20,838	11.1	22,126	11.8	23,571	12.6	25,074	13.4
Lewis	2,407.8	68,094	28.3	76,004	31.6	80,843	33.6	86,249	35.8	92,395	38.4
Lincoln	2,311.2	9,766	4.2	10,295	4.5	10,886	4.7	11,604	5.0	12,351	5.3
Mason	961.1	49,826	51.8	54,588	56.8	59,404	61.8	64,806	67.4	70,565	73.4
Okanogan	5,268.3	38,286	7.3	41,858	7.9	44,061	8.4	46,314	8.8	48,385	9.2
Pacific	974.6	20,855	21.4	23,640	24.3	24,915	25.6	26,729	27.4	28,628	29.4
Pend Orielle	1,400.5	11,523	8.2	12,979	9.3	13,974	10.0	15,011	10.7	16,055	11.5
Pierce	1,675.5	675,962	403.4	763,819	455.9	812,002	484.6	863,459	515.3	916,848	547.2
San Juan	174.9	12,545	71.7	15,680	89.7	17,366	99.3	19,168	109.6	21,110	120.7
Skagit	1,735.3	99,389	57.3	114,635	66.1	125,508	72.3	137,714	79.4	152,812	88.1

TABLE 1F
POPULATION DENSITY OF WASHINGTON COUNTIES

County	Square Miles	1998 Population		2005 Population		2010 Population		2015 Population		2020 Population	
		Total	Density	Total	Density	Total	Density	Total	Density	Total	Density
Skamania	1,656.5	9,779	5.9	10,883	6.6	11,468	6.9	12,131	7.3	12,809	7.7
Snohomish	2,090.2	585,487	280.1	660,682	316.1	719,914	344.4	783,066	374.6	836,992	400.4
Spokane	1,763.8	408,221	231.4	449,063	254.6	476,419	270.1	510,971	289.7	547,959	310.7
Stevens	2,478.8	39,591	16.0	42,405	17.1	46,585	18.8	52,101	21.0	58,503	23.6
Thurston	727.1	202,264	278.2	243,550	335.0	267,988	368.6	295,443	406.3	324,911	446.9
Wahkiakum	264.3	3,862	14.6	4,285	16.2	4,657	17.6	5,050	19.1	5,490	20.8
Walla Walla	1,270.5	53,671	42.2	59,274	46.7	62,230	49.0	65,197	51.3	67,519	53.1
Whatcom	2,120.1	157,244	74.2	178,461	84.2	192,505	90.8	208,242	98.2	224,391	105.8
Whitman	2,159.4	38,706	17.9	43,498	20.1	45,037	20.9	47,142	21.8	49,705	23.0
Yakima	4,296.1	218,808	50.9	227,620	53.0	239,436	55.7	255,252	59.4	271,726	63.2

Source: State of Washington Office of Financial Management
U.S. Department of Commerce, Bureau of Economic Analysis
Shaded cells Indicate population density greater than 100 persons per square mile

TABLE 1G
REGISTERED AIRCRAFT APPORTIONMENT MATRIX

County	2005				2010			
	Population Change Coefficient	PCI Coefficient	Density Cofficient	Multiplier	Population Change Coefficient	PCI Coefficient	Density Cofficient	Multiplier
Adams	0.0026	0.024	0.050	0.001	0.0025	0.024	0.050	0.001
Asotin	0.0030	0.024	0.050	0.001	0.0027	0.024	0.050	0.001
Benton	0.0210	0.028	0.050	0.002	0.0192	0.028	0.050	0.002
Chelan	0.0115	0.028	0.050	0.002	0.0115	0.028	0.050	0.002
Clallam	0.0105	0.026	0.050	0.001	0.0073	0.026	0.050	0.001
Clark	0.0676	0.031	1.950	0.105	0.0619	0.031	1.950	0.101
Columbia	0.0003	0.023	0.050	0.001	0.0004	0.023	0.050	0.001
Cowlitz	0.0190	0.025	0.050	0.002	0.0253	0.025	0.050	0.002
Douglas	0.0088	0.022	0.050	0.001	0.0076	0.022	0.050	0.001
Ferry	0.0013	0.019	0.050	0.001	0.0013	0.019	0.050	0.001
Franklin	0.0095	0.021	0.050	0.001	0.0088	0.021	0.050	0.001
Garfield	0.0002	0.022	0.050	0.001	0.0002	0.022	0.050	0.001
Grant	0.0184	0.023	0.050	0.001	0.0105	0.023	0.050	0.001
Grays Harbor	0.0047	0.023	0.050	0.001	0.0073	0.023	0.050	0.001
Island	0.0179	0.027	1.950	0.065	0.0189	0.027	1.950	0.066
Jefferson	0.0095	0.027	0.050	0.002	0.0093	0.027	0.050	0.002
King	0.1914	0.047	1.950	0.218	0.1906	0.047	1.950	0.217
Kitsap	0.0511	0.027	1.950	0.085	0.0534	0.027	1.950	0.087
Kittitas	0.0050	0.023	0.050	0.001	0.0053	0.023	0.050	0.001
Klickitat	0.0032	0.023	0.050	0.001	0.0032	0.023	0.050	0.001
Lewis	0.0129	0.023	0.050	0.001	0.0121	0.023	0.050	0.001
Lincoln	0.0005	0.025	0.050	0.001	0.0015	0.025	0.050	0.001
Mason	0.0104	0.022	0.050	0.001	0.0120	0.022	0.050	0.001
Okanogan	0.0057	0.023	0.050	0.001	0.0055	0.023	0.050	0.001
Pacific	0.0037	0.023	0.050	0.001	0.0032	0.023	0.050	0.001
Pend Orielle	0.0024	0.021	0.050	0.001	0.0025	0.021	0.050	0.001
Pierce	0.0955	0.028	1.950	0.118	0.1200	0.028	1.950	0.134
San Juan	0.0041	0.041	0.050	0.002	0.0042	0.041	0.050	0.002
Skagit	0.0252	0.028	0.050	0.002	0.0271	0.028	0.050	0.002
Skamania	0.0016	0.024	0.050	0.001	0.0015	0.024	0.050	0.001
Snohomish	0.1769	0.031	1.950	0.177	0.1475	0.031	1.950	0.158
Spokane	0.0582	0.027	1.950	0.091	0.0681	0.027	1.950	0.098
Stevens	0.0089	0.020	0.050	0.001	0.0104	0.020	0.050	0.001
Thurston	0.0651	0.029	1.950	0.099	0.0609	0.029	1.950	0.096
Wahkiakum	0.0008	0.023	0.050	0.001	0.0009	0.023	0.050	0.001
Walla Walla	0.0079	0.024	0.050	0.001	0.0074	0.024	0.050	0.001
Whatcom	0.0327	0.026	0.050	0.002	0.0350	0.026	0.050	0.002
Whitman	0.0037	0.022	0.050	0.001	0.0038	0.022	0.050	0.001
Yakima	0.0271	0.024	0.050	0.002	0.0294	0.024	0.050	0.002

TABLE 1G
REGISTERED AIRCRAFT APPORTIONMENT MATRIX

County	2015				2020			
	Population Change Coefficient	PCI Coefficient	Density Cofficient	Multiplier	Population Change Coefficient	PCI Coefficient	Density Cofficient	Multiplier
Adams	0.0027	0.024	0.050	0.001	0.0027	0.024	0.050	0.001
Asotin	0.0021	0.024	0.050	0.001	0.0026	0.024	0.050	0.001
Benton	0.0211	0.028	1.950	0.057	0.0198	0.028	1.950	0.053
Chelan	0.0111	0.028	0.050	0.001	0.0110	0.028	0.050	0.001
Clallam	0.0062	0.026	0.050	0.001	0.0089	0.026	0.050	0.001
Clark	0.0526	0.031	1.950	0.079	0.0522	0.031	1.950	0.075
Columbia	0.0005	0.023	0.050	0.001	0.0005	0.023	0.050	0.001
Cowlitz	0.0229	0.025	1.950	0.053	0.0234	0.025	1.950	0.051
Douglas	0.0071	0.022	0.050	0.001	0.0068	0.022	0.050	0.001
Ferry	0.0013	0.019	0.050	0.001	0.0013	0.019	0.050	0.001
Franklin	0.0096	0.021	0.050	0.001	0.0091	0.021	0.050	0.001
Garfield	0.0002	0.022	0.050	0.001	0.0002	0.022	0.050	0.001
Grant	0.0071	0.023	0.050	0.001	0.0066	0.023	0.050	0.001
Grays Harbor	0.0093	0.023	0.050	0.001	0.0113	0.023	0.050	0.001
Island	0.0167	0.027	1.950	0.054	0.0143	0.027	1.950	0.050
Jefferson	0.0090	0.027	0.050	0.001	0.0087	0.027	0.050	0.001
King	0.2000	0.047	1.950	0.185	0.2153	0.047	1.950	0.183
Kitsap	0.0536	0.027	1.950	0.072	0.0544	0.027	1.950	0.069
Kittitas	0.0058	0.023	0.050	0.001	0.0060	0.023	0.050	0.001
Klickitat	0.0032	0.023	0.050	0.001	0.0032	0.023	0.050	0.001
Lewis	0.0120	0.023	0.050	0.001	0.0131	0.023	0.050	0.001
Lincoln	0.0016	0.025	0.050	0.001	0.0016	0.025	0.050	0.001
Mason	0.0120	0.022	0.050	0.001	0.0123	0.022	0.050	0.001
Okanogan	0.0050	0.023	0.050	0.001	0.0044	0.023	0.050	0.001
Pacific	0.0040	0.023	0.050	0.001	0.0041	0.023	0.050	0.001
Pend Orielle	0.0023	0.021	0.050	0.001	0.0022	0.021	0.050	0.001
Pierce	0.1146	0.028	1.950	0.108	0.1141	0.028	1.950	0.102
San Juan	0.0040	0.041	1.950	0.069	0.0042	0.041	1.950	0.065
Skagit	0.0272	0.028	0.050	0.002	0.0323	0.028	0.050	0.002
Skamania	0.0015	0.024	0.050	0.001	0.0014	0.024	0.050	0.001
Snohomish	0.1407	0.031	1.950	0.127	0.1152	0.031	1.950	0.107
Spokane	0.0770	0.027	1.950	0.086	0.0790	0.027	1.950	0.082
Stevens	0.0123	0.020	0.050	0.001	0.0137	0.020	0.050	0.001
Thurston	0.0612	0.029	1.950	0.080	0.0630	0.029	1.950	0.077
Wahkiakum	0.0009	0.023	0.050	0.001	0.0009	0.023	0.050	0.001
Walla Walla	0.0066	0.024	0.050	0.001	0.0050	0.024	0.050	0.001
Whatcom	0.0351	0.026	0.050	0.002	0.0345	0.026	1.950	0.058
Whitman	0.0047	0.022	0.050	0.001	0.0055	0.022	0.050	0.001
Yakima	0.0352	0.024	0.050	0.001	0.0352	0.024	0.050	0.001

TABLE 1H
COUNTY REGISTERED AIRCRAFT FORECASTS

County	Registered Aircraft				
	Historical[9]	Forecasts[10]			
	2000	2005	2010	2015	2020
Adams	60	61	62	63	64
Asotin	57	58	59	60	61
Benton	225	227	228	280	328
Chelan	171	172	174	175	176
Clallam	163	164	166	167	168
Clark	528	622	714	785	852
Columbia	12	13	14	15	16
Cowlitz	84	85	87	135	181
Douglas	90	91	92	93	94
Ferry	9	10	11	11	12
Franklin	109	110	111	112	113
Garfield	10	11	12	13	14
Grant	225	226	228	229	229
Grays Harbor	85	86	87	88	89
Island	126	185	244	293	337
Jefferson	125	126	128	129	130
King	3,215	3,410	3,606	3,772	3,937
Kitsap	269	346	424	489	551
Kittitas	66	67	68	69	70
Klickitat	97	98	99	100	101
Lewis	132	133	134	135	136
Lincoln	75	76	77	78	79
Mason	51	52	53	54	55
Okanogan	254	255	256	257	258
Pacific	23	24	25	26	27
Pend Orielle	14	15	16	17	17
Pierce	846	952	1,072	1,170	1,262
San Juan	309	311	313	375	434
Skagit	236	238	239	241	242
Skamania	19	20	21	22	23
Snohomish	962	1,121	1,263	1,377	1,473
Spokane	668	750	838	915	989
Stevens	102	103	104	105	106
Thurston	304	393	479	551	620
Wahkiakum	2	3	4	5	6
Walla Walla	137	138	139	140	141
Whatcom	247	249	250	252	304
Whitman	132	133	134	135	136
Yakima	263	264	266	267	269
Total:	10,502	11,400	12,300	13,200	14,100

[9] AIRPAC Plane CD

[10] County registered aircraft increased at rate of State population change attributable to that county

At the onset of the study, it was decided by the Aviation Division that the State would be divided into regions, to reflect the State's economic and geographic diversity. It was agreed that the counties would be grouped according to the six regions upon which the State Department of Transportation is organized. Additionally, given the unique economic and demographic characteristics of the Puget Sound area, Snohomish; King; Pierce; and Kitsap counties, have been included in a seventh region, known as the Central Puget Sound Region. These regions are illustrated in **Exhibit C**. **Table 1I** and **Exhibit D** summarize the registered aircraft forecasts for each county by region. **Exhibit E** depicts registered aircraft per thousand population for each region. This is a significant measure, as it indicates which regions have higher concentrations of registered aircraft with respect to population.

Based aircraft figures were obtained for each airport included in the study through a variety of sources, including airport manager surveys and the latest FAA Form 5010, "Airport Master Record," for each airport. A review of these data revealed that 7,136 aircraft were based at the Washington airports included in this study, including 6,394 single engine aircraft, 539 multi-engine piston and turboprops, 94 turbojets, and 109 rotor wing aircraft. Therefore, of the 10,502 aircraft registered in the State, approximately 67.9 percent are based at airports included in this study.

Several factors may account for the relatively small number of registered aircraft being based at the airports included in this study. First, a number of aircraft are based at facilities not included in the study, including private airstrips and State airports. Another factor sited was aircraft not airworthy or being restored, but still registered with FAA as active.

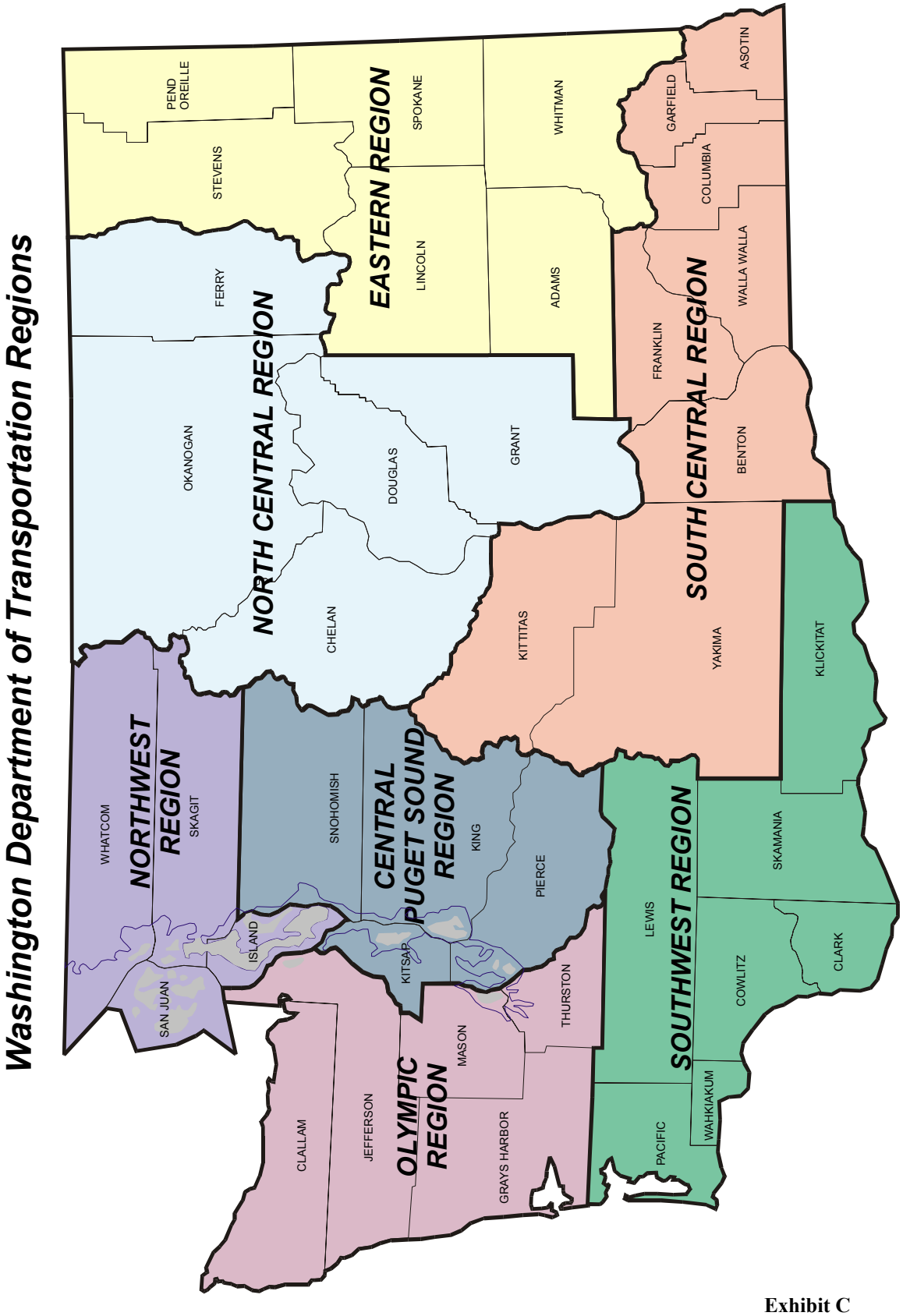

Washington Department of Transportation Regions
NORTHWEST REGION
NORTH CENTRAL REGION
EASTERN REGION
SOUTH CENTRAL REGION
CENTRAL PUGET SOUND REGION
SOUTHWEST REGION
OLYMPIC REGION
WHATCOM
SKAGIT
SAN JUAN
ISLAND
SNOHOMISH
KING
KITSAP
PIERCE
THURSTON
MASON
GRAYS HARBOR
JEFFERSON
CLALLAM
OKANOGAN
CHELAN
DOUGLAS
GRANT
FERRY
PEND OREILLE
STEVENS
SPOKANE
LINCOLN
ADAMS
WHITMAN
ASOTIN
GARFIELD
COLUMBIA
WALLA WALLA
FRANKLIN
BENTON
KITTITAS
YAKIMA
KLICKITAT
LEWIS
SKAMANIA
COWLITZ
CLARK
PACIFIC
WAHKIAKUM

Exhibit C

TABLE 1I
REGISTERED AIRCRAFT BY REGION

Eastern Region					
Counties	**2000**	**2005**	**2010**	**2015**	**2020**
Adams	60	61	62	63	64
Lincoln	75	76	77	78	79
Pend Oreille	14	15	16	17	17
Spokane	668	750	838	915	989
Stevens	102	103	104	105	106
Whitman	132	133	134	135	136
Total	**1,051**	**1,138**	**1,231**	**1,313**	**1,391**

North Central Region					
Counties	**2000**	**2005**	**2010**	**2015**	**2020**
Chelan	171	172	174	175	176
Douglas	90	91	92	93	94
Ferry	9	10	11	11	12
Grant	225	226	228	229	229
Okanogan	254	255	256	257	258
Total	**749**	**755**	**761**	**765**	**770**

Northwest Region					
Counties	**2000**	**2005**	**2010**	**2015**	**2020**
Island	126	185	244	293	337
San Juan	309	311	313	375	434
Skagit	236	238	239	241	242
Whatcom	247	249	250	252	304
Total	**918**	**982**	**1,047**	**1,160**	**1,317**

Olympic Region					
Counties	**2000**	**2005**	**2010**	**2015**	**2020**
Clallam	163	164	166	167	168
Grays Harbor	85	86	87	88	89
Jefferson	125	126	128	129	130
Mason	51	52	53	54	55
Thurston	304	393	479	551	620
Total	**728**	**822**	**913**	**989**	**1,062**

TABLE 1I
REGISTERED AIRCRAFT BY REGION

South Central Region					
Counties	**2000**	**2005**	**2010**	**2015**	**2020**
Asotin	57	58	59	60	61
Benton	225	227	228	280	328
Columbia	12	13	14	15	16
Franklin	109	110	111	112	113
Garfield	10	11	12	13	14
Kittitas	66	67	68	69	70
Walla Walla	137	138	139	140	141
Yakima	263	264	266	267	269
Total	**879**	**889**	**898**	**957**	**1,011**

Southwest Region					
Counties	**2000**	**2005**	**2010**	**2015**	**2020**
Clark	528	622	714	785	852
Cowlitz	84	85	87	135	181
Klickitat	97	98	99	100	101
Lewis	132	133	134	135	136
Pacific	23	24	25	26	27
Skamania	19	20	21	22	23
Wahkiakum	2	3	4	5	6
Total	**885**	**986**	**1,085**	**1,208**	**1,326**

Central Puget Sound					
Counties	**2000**	**2005**	**2010**	**2015**	**2020**
King	3,215	3,410	3,606	3,772	3,937
Pierce	846	952	1,072	1,170	1,262
Snohomish	962	1,121	1,263	1,377	1,473
Kitsap	269	346	424	489	551
Total	**5,292**	**5,828**	**6,365**	**6,807**	**7,223**

Statewide	***10,502***	***11,400***	***12,300***	***13,200***	***14,100***

Registered Aircraft by Region

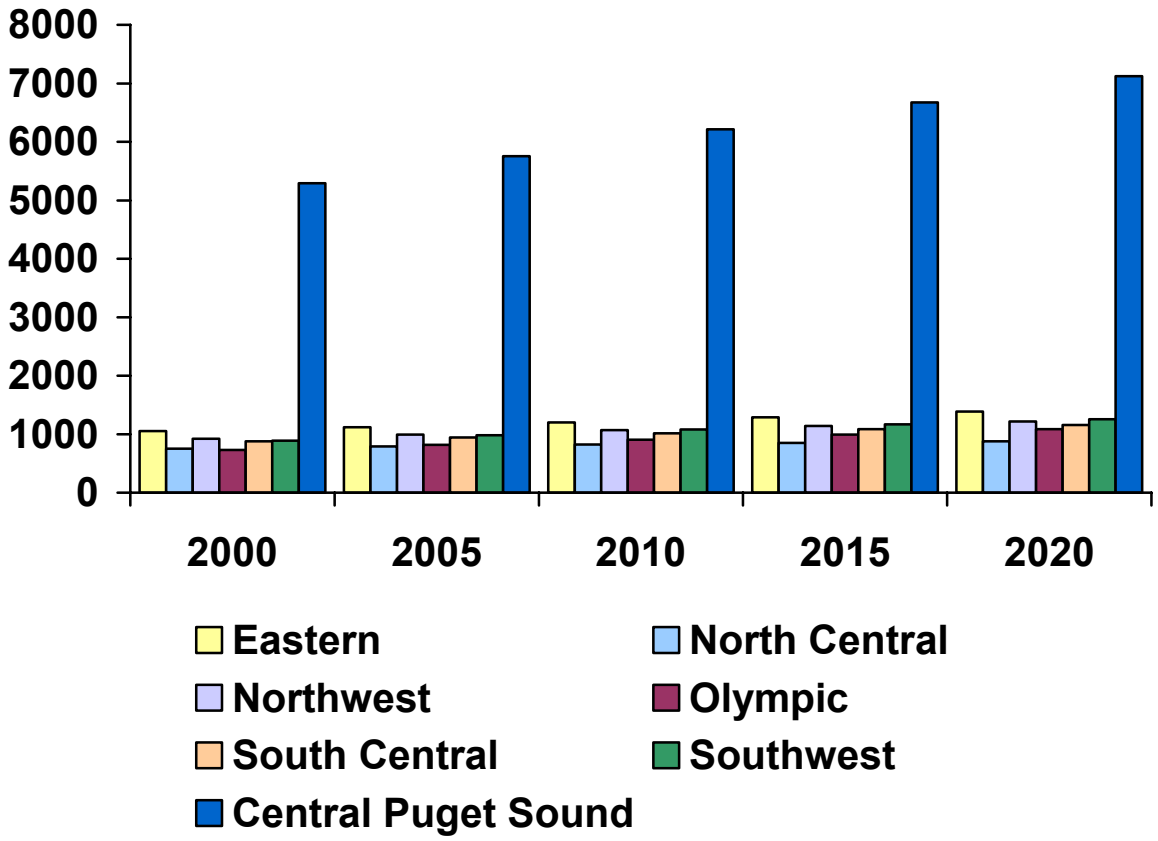
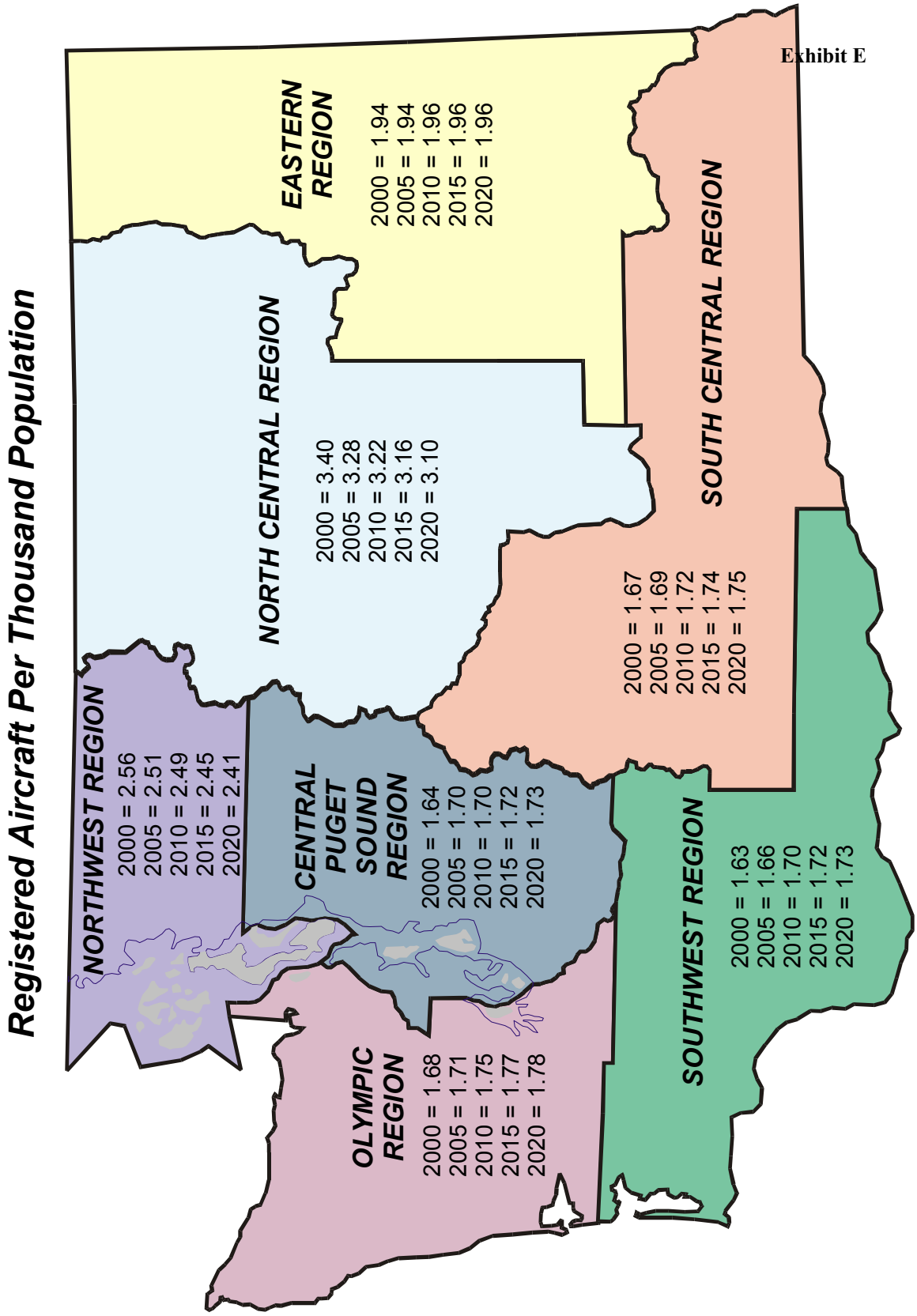


Exhibit E


Registered Aircraft Per Thousand Population
EASTERN REGION
2000 = 1.94
2005 = 1.94
2010 = 1.96
2015 = 1.96
2020 = 1.96
NORTH CENTRAL REGION
2000 = 3.40
2005 = 3.28
2010 = 3.22
2015 = 3.16
2020 = 3.10
SOUTH CENTRAL REGION
2000 = 1.67
2005 = 1.69
2010 = 1.72
2015 = 1.74
2020 = 1.75
NORTHWEST REGION
2000 = 2.56
2005 = 2.51
2010 = 2.49
2015 = 2.45
2020 = 2.41
CENTRAL PUGET SOUND REGION
2000 = 1.64
2005 = 1.70
2010 = 1.70
2015 = 1.72
2020 = 1.73
OLYMPIC REGION
2000 = 1.68
2005 = 1.71
2010 = 1.75
2015 = 1.77
2020 = 1.78
SOUTHWEST REGION
2000 = 1.63
2005 = 1.66
2010 = 1.70
2015 = 1.72
2020 = 1.73